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A new species of *Rhantus* diving beetles from the wetlands of the City of Bogota and surroundings (Coleoptera, Dytiscidae, Colymbetinae)

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Abstract

The Colombian species of the genus *Rhantus* are reviewed. *Rhantus bogotensis* **sp. nov.** is described and illustrated, based on specimens collected in the Altiplano of the Bogota region. It is compared with the similar species *Rhantus franzi*, *R. vicinus*, and *R. crypticus*. The Ecuadorian species *Rhantus crypticus* was found for the first time in the highlands of Nariño department. This is a new record for Colombia. Five species of *Rhantus* are presently known from Colombia.

Key Words

Dytiscidae
Rhantus
new species
new records
Bogota
Colombia

Introduction

Diving beetles of the genus *Rhantus* Dejean, 1833 are moderately large Dytiscidae, with body lengths of 8–14 mm. The species can be rather abundant in shallow stagnant water habitats usually with rich emergent vegetation. Few species occur in creeks (Balke and Ramsdale 2006). *Rhantus* species avoid wet tropical climate, so that the vast majority of tropical species do actually occur on higher altitudes with cooler climates (Balke 2001; Morinière et al. 2016). Neotropical species were reviewed by several authors in a series of more recent publications (Trémouilles 1984; Balke 1990, 1992, 1993, 1998; Peck and Balke 1993; Balke et al. 2002; Balke et al., in prep.). To date, three species were known from Colombia, *R. andinus* Balke, 1998, *R. franzi* Balke, 1998 and *R. vicinus* (Aubé, 1838). *Rhantus crypticus* Balke, 1992, described from Ecuador, has also been found in southern Colombia recently (new record given below). Here we add a fifth, hitherto undescribed species from the wetlands right in and around the city of Bogota.

Materials and methods

The beetles were studied with a Leica M205C stereo microscope at 10–160×. Habitus images were taken with a Canon EOS 550D camera fitted with a 65 mm Canon macro lens, attached to a Stackmaster macro rail (Stonemaster: http://www.stonemaster-onlineshop.de). Illumination was with two Canon Speedlite 430EX III-RT flashlights and translucent paper diffusors. Photographs of genitalia, surface sculpture and the claws were taken with a digital imaging system composed of a Can-

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on 5DS camera with, with a 10× Mitutoyo ELWD Plan Apo objective attached to a Carl Zeiss Jena Sonnar 3.5 / 135 MC as focus lens. Illumination was with four LED segments SN-1 from Stonemaster. Image stacks were generated using the Stackmaster macro rail (Stonemaster), and images were then assembled with the computer software Helicon Focus 4.77TM.

The following acronyms are used in the text: ICN-UNAL (Colombian National Collection of Insects, Natural Sciences Institute, Universidad Nacional de Colombia); ZSM (SNSB-Zoologische Staatssammlung, München, Germany), vouchers temporarily stored for further comparative morphological work.

Results

***Rhantus bogotensis* sp. nov.**

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Figs 1B, 2A, B, D, E, F, 3A–G, 4

Type locality. Colombia, Bogota city, Juan Amarillo / Tibabuyes wetland.

Holotype. Male (ICN-UNAL): "Colombia, Bogotá D.C., Bogotá, Humedal Tibabuyes, 2,500m, 25.ix.2003, 4.7187, -74.0976; dry mounted out of an Ethanol vial labelled "Coleoptera Dytiscidae 356, Rhantus, det. M. Laython 2016"; "HOLOTYPE *Rhantus bogotensis* sp. nov. Balke, Ospina-Torres, Megna, Laython & Hendrich, 2019" [red printed label].

240 Paratypes. 2 exx, same data as holotype (ICN-ICN-UNAL); 1 ex., "Colombia: Bogota, La Florida, 2,436m, 19.iv.2017, 4.728, -74.142, Y.S. Megna & N. Stiven (12)", (MB 7823) (ZSM); 118 exx, "Colombia, Cundinamarca, Humedal La Florida, 2,400m, 19.xi.2018, 4.729 -74.143, Ospina, Balke & Megna (COL_MB_2018_08)" (ICN-UNAL, ZSM); 119 exx, "Colombia, Cundinamarca, Humedal La Florida, 2,400m, 22.xi.2018, 4.729 -74.143, Ospina, Balke & Megna (COL_MB_2018_12)" (ICN-UNAL, ZSM). All specimens bear our red printed paratype labels.

Description. Holotype. A medium sized *Rhantus* species, total length of holotype 11.3 mm, length without head 10.2 mm, greatest width 5.9 mm.

Colour: Head black with contrasting orange marks as in Fig. 1B. Pronotum yellow orange, base as well discal patch somewhat black. Elytron orange with black irrora-

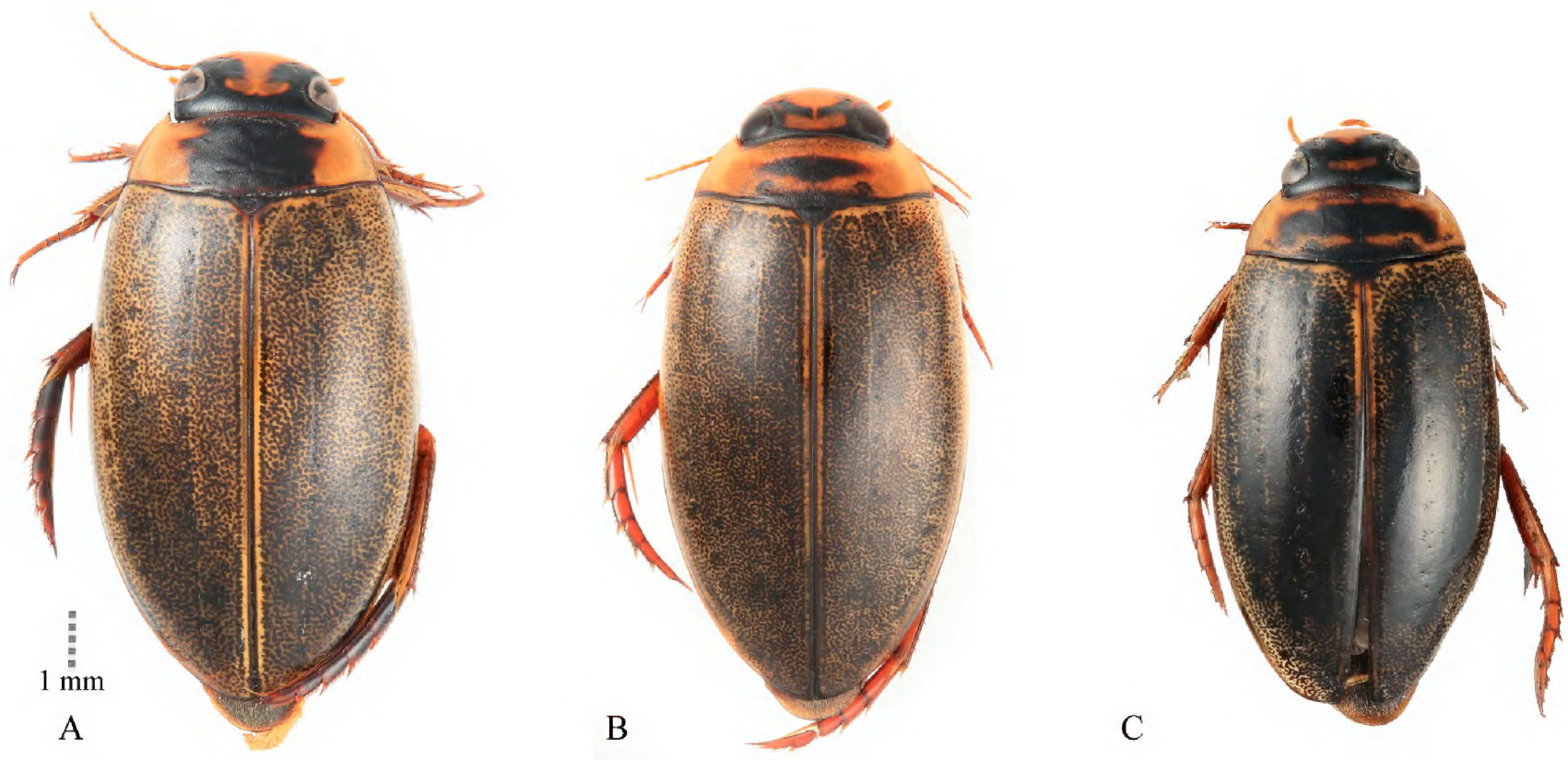

Figure 1. Dorsal habitus of *Rhantus andinus* (**A**), *R. bogotensis* sp. nov. (**B**), *R. vicinus* (**C**), *R. franzi* (**D**).

Figure 2. *Rhantus* spp.: Pronotal margin of *R. bogotensis* sp. nov. female (**A**), male (**B**); *R. vicinus* female (**C**); *R. bogotensis*: surface sculpture on head, frons (**D**), middle part of pronotum with base and disc (**E**) elytron, basal area (**F**).

tions. Body appendages, prothorax, prosternal process, epipleuron, coxae, postcoxal process and hind margins of abdominal sternites orange to dark ferruginous, rest of venter black.

Surface sculpture: Head with irregular meshes and dense, distinct punctation, no microreticulation (MR) visible (Fig. 2D); clypeus with double punctation only. Pronotum with irregular meshes and dense, distinct double punctation, disc with double punctation only; no MR visible on pronotum (Fig. 2E). Elytron with distinct, irregular polygonal meshes and fine punctation; with distinct though sometimes faint MR within the meshes (Fig. 2F).

Structures: Pronotum with broad and conspicuous lateral bead which does however not reach the anterior angle (Fig. 2B). Lateral wings of metaventrite triangular; hind wings fully developed. Last ventrite rounded apically.

Tarsal characters: Protarsal claws (Fig. 3F, G) with anterior and posterior claw of almost equal length, posterior claw slightly longer and about the same length as tarsomere V. Claws slender and with no particular modification (e.g. not dentate). Mesotarsal claws sinuate, with posterior claw shorter and more strongly curved than anterior claw, shorter than fifth protarsomere (Fig. 3D, E). Pro- and mesotarsomeres 1–3 not dilated laterally (Fig. 3D, F), with four transverse rows of stalked suction discs ventrally. Number of discs per row (tarsomere on which row occurs given in parentheses): 5(I)/6(I)/6(II)/5(III).

Genital structure: Median lobe of aedeagus as in Fig. 3B, C, in lateral view appearing of longish curvature; parameres with a fringe of yellow hairs which are apically acute, not trumpet shaped (Fig. 3A).

Female: Color and surface sculpture as in male. Tarsomere without stalked suction discs ventrally. The anterior margin of the anterior corner of pronotum (Fig. 2A, white asterisk) thicker than in male specimens (Fig. 2B).

Variation. Body size varies from 11.0–12.1 mm. The discal dark spot on pronotum can be obsolete, or slightly more extended than in Fig. 1B, the same is true for the basal dark spot. Both can be approaching but do not connect.

Etymology. Named after the type locality.

Comparative notes. A species well delineated from the other Colombian *Rhantus* of similar size by the following set of features:

Rhantus franzi, described from the Cauca Valley and Ecuador (holotype male studied here) is similar in size but with pronotal coloration more similar to *R. andinus* (Fig. 1A, D). The protarsal claws are similar to *R. bogotensis* sp. nov. (Fig. 3L), but the anterior mesotarsal claw is simply curved in *R. franzi* (Fig. 3M, N) and not more broadly triangular as in *R. bogotensis* sp. nov. (Fig. 3D, E). The posterior mesotarsal claw is missing in the holotype of *R. franzi* studied here (and tarsus missing on other side of body). The median lobe of aedeagus only slightly more elongate in *R. franzi* (Fig. 3K).

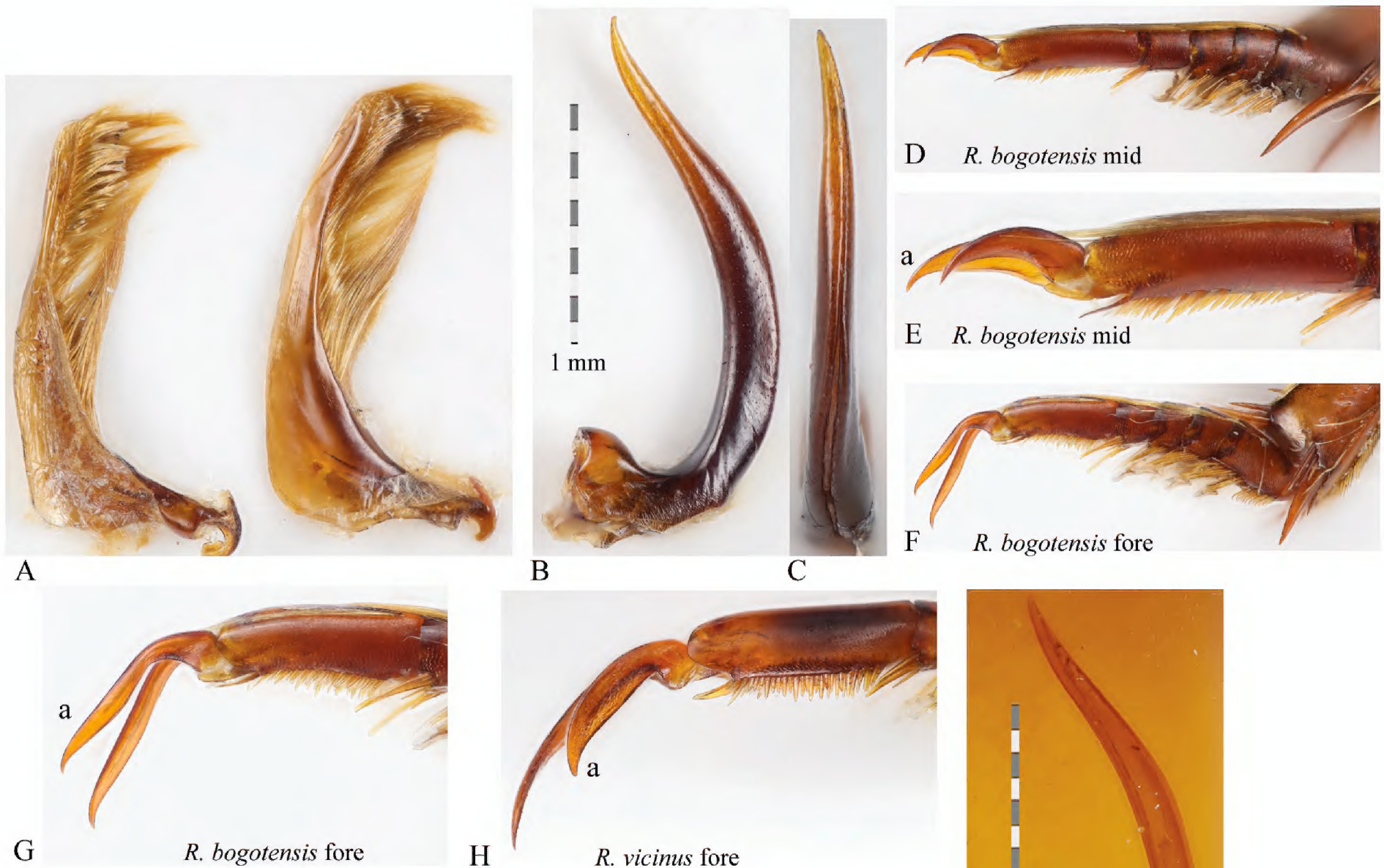

Figure 3. *Rhantus* spp., males: *Rhantus bogotensis* sp. nov. parameres (**A**), median lobe of aedeagus in lateral view (**B**), same in ventral view (**C**), mesotarsus (**D**), mesotarsomere V and claws (**E**), foretarsus (**F**), protarsomere V and claws (**G**); *R. vicinus*: protarsomere V and claws (**H**); *R. andinus*: protarsomere V and claws (**I**); *R. crypticus*: protarsomere V and claws (**J**); *R. franzi* median lobe of aedeagus in lateral view (**K**), protarsomere III–V and claws (**L**), mesotarsus (**M**), mesotarsomere V and anterior claw, posterior claw missing (**N**). "a" denotes anterior claw.

Males of *R. vicinus* and *R. crypticus* have the pro- and mesotarsomeres 1–3 distinctly dilated laterally, see Fig. 3J (not so in *R. bogotensis* sp. nov., Fig. 3F).

Males of *R. vicinus* and *R. crypticus* have the protarsal claws of unequal length and shape (Fig. 3H, J), anterior one much shorter and broader than posterior, with dent like shape in *R. crypticus* (Fig. 3J) (subequal in *R. bogotensis* sp. nov., Fig. 3F, G). The protarsal and mesotarsal claws of *R. andinus* (Fig. 3I) are similar to *R. bogoten-*

B

C

Figure 4. Habitat of *Rhantus bogotensis* sp. nov. in the Altiplano of Bogota, Colombia. Florida wetland, deeper water bodies where we did encounter only very few specimens (**A**), shallow ponds, most likely ephemeral (**B, C**).

sis sp. nov., but the beetles are easily separable by body size and coloration alone (Fig. 1A, B).

Females of *R. vicinus* and *R. crypticus* have the anterior angle of the pronotum distinctly extended (Fig. 2C, arrow). This is not the case in *R. bogotensis* sp. nov. (Fig. 2A).

Specimens of *R. vicinus* (Fig. 1C) and *R. crypticus* are generally of darker appearance than *R. bogotensis* sp. nov. (Fig. 1B).

Distribution. Altiplano of the Bogota region.

Habitat. Collected from richly vegetated ponds in full sun or slightly shaded, in abundance from flooded mats of grasses (Fig. 4B, C). Bottom of these habitats was usually black, foul smelling mud. In the La Florida wetland, the beetles seemed to avoid larger, deeper water bodies, possibly to avoid predation by fish (Fig. 4A).

Notes. Collected with aquatic nets as well as bottle traps. In association with the following other Dytiscidae: *R. andinus* (abundant), *R. vicinus* (only few, this species is abundant on higher elevations as well as in the Páramos above the altiplano of Bogota), two species of *Copelatus* Erichson, 1832 and *Liodessus bogotensis* Guignot, 1953, as well as different Hydrophilidae.

Rhantus crypticus Balke, 1992

Fig. 3J

New record for Colombia. Voucher specimens are from the following localities (5 per locality, ICN-UNAL and ZSM): Colombia: Nariño, Tuquerres, 3,681 m, 07.v.2017, 1.095, -77.694, Y. S. Megna & C. E. Ruiz (24); Colombia: Nariño, Pasto, 3,440 m, 05.v.2017, 1.176, -77.342, Y. S. Megna & C. E. Ruiz (20); Colombia: Nariño, Tuquerres, 3,820 m , 10.v.2017, 0.941, -77.863, Y. S. Megna & C. E. Ruiz (28); Colombia: Nariño, Tuquerres, 3,776 m , 07.v.2017, 1.087, -77.711, Y. S. Megna & C. E. Ruiz (25); Colombia: Nariño, Putumayo, 3,196 m, 02.v.2017, 1.133, -77.100, Y. S. Megna & C. E. Ruiz (18); Colombia: Nariño, Pasto, 2,775m, 02.v.2017, 1.116, -77.166, Y. S. Megna & C. E. Ruiz (17).

Discussion

Based on recent fieldwork in Colombia, we discovered a new species of diving beetles right in the capital area of the country. *Rhantus bogotensis* sp. nov. is apparantly rather abundant in richly vegetated stagnant water bodies in the Altiplano of Bogota. We also report the species *Rhantus crypticus* Balke, 1992, described from Ecuador, from Colombia for the first time. Both species belong to the Neotropical clade (Morinière et al. 2016) including *Rhantus signatus* (Fabricius, 1775) and related species, originally established based on the general shape of the median lobe (Balke 1992, 1993; Balke et al. 2002). This work was made possible through a close cooperation between Colombian, Cuban and German researchers, which has been established to advance our knowledge of Andean aquatic beetles.

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